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ABSTRACT

The relationship between language and symbolic play was studied in a sample of children identified as referential in style (multiple noun utterances exceeded pronoun or no-noun utterances), as compared with a sample identified as expressive in style (pronoun utterances or no-noun utterances exceeded multiple noun utterances). Children were assigned to language styles based on the examples of multiword speech reported by their parents in the language interview. A total of 30 children between 19 and 21 months (15 boys and 15 girls) were observed for 45 minutes in a laboratory playroom setting. Administered tasks were aimed at assessing the child's ability to combine his or her actions into sequences. Results indicated that the referential children, given appropriate objects, spontaneously demonstrated a number and variety of schemes in conventional order. The expressive children seemed to be at a loss when presented with an array of objects to use spontaneously. Evidence thus indicated that the linguistic style adopted by children in the early multiword period extends beyond language and is related to their approach to symbolic play tasks. (BJD)

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Individual styles in language and symbolic play

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Researchers are becoming increasingly conscious of style differences in children's early multi-word speech. Nelson (1973) and Bloom Lightbown & Hood (1975) identified an idealized referential style, characterized by a high rate of noun-noun constructions, a large vocabulary and a high rate of object labeling. By contrast, its idealized counterpart, an expressive style, is characterized by shorter noun phrases, greater pronoun use, no-noun constructions, and a large percentage of the corpus in function words and personal-social words. Nelson (1981) and Bretherton, McNew, Snyder & Bates (1983) have suggested that the referential style may be reflective of an analytic approach to language, and the expressive style of a holistic one. These different styles are suggestive of different routes into language, and thus, potential differences in related cognitive abilities. The present study examined the relationship between language and symbolic play in a sample of children identified as referential in style as compared to a sample identified as expressive in style.

Method

Subjects

Thirty children between 19 and 21 months, 15 boys and 15 girls, were observed in a laboratory playroom setting. A number of tasks

were administered which were aimed at assessing the child's ability to combine his/her actions into sequences. For the present purposes, we are concerned with a language interview, observed language, and symbolic play.

Language interview

An extensive maternal interview, validated by Bretherton et al. (1983) was obtained. The interview data were analyzed by cluster analysis, as in Bretherton et al. Two clusters emerged from this analysis. These clusters were similar in composition to those found by Bretherton et al. One was made up primarily of variables related to multi-word semantics: number of semantic cases expressed in multi-word utterances, number of pivot words ("allgone","more" etc.) used in multi-word combinations, number of cases expressed in single words, number of examples of multi-word utterances using one or more nouns, and the extent of use of words to indicate absence or pretend. The other cluster was made up primarily of moprhological variables: number of articles, number of auxiliaries, number of pronouns used in multi-word utterances, number of verb inflections, number of examples of multi-word utterances with no nouns, and number of examples using articles, prepositions, auxiliaries, and inflections. Cluster scores were calculated by adding the subject's Z scores on all defining variables.

Observed language

The children's utterances throughout the session were recorded and transcribed by two independent raters. Only utterances which were agreed upon by the two raters were entered into further analyses. The observed corpora were used to calculate a number of language

measures, including total number of multi-word utterances, Mean Length Utterance (Brown, 1973), MLU in morphemes on the five longest utterances (Wells, 1981), MLU in content words on the five longest utterances, and proportion of corpus in multi-word utterances.

Assignment of subjects to styles

Children were assigned to language styles based on the examples of multi-word speech given by their parents in the language interview. Interview data were used for this assignment, rather than observed language because children may exhibit different types of utterances in different circumstances (Nelson, 1981). Since the experimental contact with the subjects was limited to a single 45-minute session, it was thought that the parent's examples would give a better estimate of the child's typical utterances across a variety of situations.

Children were classified as "referential" if the proportion of the corpus made up by multi-noun utterances exceeded the proportion of the corpus in pronoun-only or no-noun utterances. In other words, children were classified as "referential" if their corpus of examples showed a predominance of multi-noun utterances over those lacking nouns. Conversely, children were classified as "expressive" if the proportion of utterances with pronouns only or no nouns exceeded the proportion of utterances with multiple nouns.

Fourteen children were classified as referential. Ten were classified as expressive. Six children were excluded from the original sample of 30 because their parents gave no examples of multi-word utterances, and so could not be assigned to a style.

Symbolic play

Since previous work (Shore, O'Connell & Bates, in press) had found differences between correlational patterns involving symbolic

play with appropriate objects and those involving inappropriate objects, two scenarios were modeled for each of four target objects. One scenario utilized an appropriate exemplar and the other an inappropriate exemplar of the target object. As an example, a doggie scene was modeled by E as "Put the leash on the doggie, hug the doggie, make the doggie eat (from a bowl)". This was modeled once with an appropriate object, a stuffed dog, and with an inappropriate object, a flashlight.

Two independent transcriptions were made of the child's symbolic play. Only behaviors which were agreed upon by the two raters were included as part of the analysis. The stream of behaviors produced by the child in symbolic play was segmented into units considered roughly analogous to utterances. A segment was considered to end when the child 1) indicated s/he was finished with the toys, 2) engaged in social interaction, or 3) engaged in irrelevant activities. For example, a child might carry out the following actions during a trial: "Picks up pitcher, pours into cup. Puts pitcher down, and points to picture on wall of playroom. Picks up pitcher, pours into cup, drinks from cup, pours again, drinks again, uses napkin to wipe mouth". The child's actions would be summarized as follows: Two segments or chains, one consisting of pours, the other of pour, drink, pour, drink, wipe. The child did 6 schemes during the trial, but only three different schemes (pour, drink, wipe). The longest chain of schemes was five (pour, drink, pour, drink, wipe), but the greatest number of different shcmes in a chain was three (pour, drink wipe). Three pairs of actions were in the modeled order: pour-drink, pour-drink, and drink-wipe.

The child received four sets of scores: appropriate objects--spontaneous and elicited, inappropriate objects--spontaneous and elicited. For each of these trials, we calculated total number of schemes, number of different schemes, number of schemes in longest chain, greatest number of different schemes in a chain, and number of pairs of actions in modeled order.

Results and Discussion

Mean performances in symbolic play

For each of the dependent measures from the symbolic play task, a 2 (Style) x 2 (Appropriate/Inappropriate object) x 2 (Modeling) mixed analysis of variance was carried out, with Object and Modeling as within-subjects factors.

In no case was the main effect of style significant. Both Object and Modeling, however, were significant main effects for all dependnent measures. These main effects are not at all surprising: children showed higher performances with appropriate objects than with inappropriate objects, and more symbolic play after modeling than before.

A much more interesting picture is suggested by the interaction of Style, Object, and Modeling, which appeared in the analyses of number of schemes, number of different shcmes, ordering, and (marginally) number of schemes in longest chain. This interaction is illustrated in Figure 1. This interaction suggests that the two styles are differentially sensitive to modeling of scenarios involving appropriate versus inappropriate objects. The Referential children, given appropriate objects, spontaneously demonstrate a number and variety of schemes in conventional order. That performance changes little after modeling--they have already shown largely what they are capable of doing. With inappropriate objects, however,

they seem to "get the idea" once the model is presented. So thoroughly do they "catch on" that their performance after modeling with the two types of objects is equivalent. The Expressive children, on the other hand, seem to be at a loss when presented with an array of objects to use spontaneously. Although modeling increases their performance with both types of objects, these children show remarkably high performances with the appropriate objects after the model. It is almost as though the child were suddenly recognizing that all these elements in front of her are part of a familiar story. Whereas for the Referential children it is the model of the inappropriate objects which is captivating, the Expressive children are captured by the model with the appropriate objects.

Correlations between language and symbolic play

A comparison of the correlational patterns between language and symbolic play in the two styles is presented in Table 1. All correlations are non-parametric.

The Referential group shows the closest approximation to the findings reported previously by Shore et al. (in press) and Shore (1981), namely positive correlations between language measures and symbolic play with inappropriate objects. If previous interpretations are correct, that is, play with inappropriate objects relies on more analytic processes, the positive correlation for this group may be taken as evidence for an analytic approach to multi-word utterances. However, this group also shows some negative correlations between language measures and spontaneous play with appropriate objects, a finding not previously reported in the literature. This relationship will beocme more complex as we examine the Expressive group.

The Expressive group shows a pattern of correlations quite different from that of the Referential group. Instead of positive correlations with inappropriate play, thier language is negatively correlated with spontaneous play of this type. In fact, spontaneous play with both inappropriate and appropriate objects is negatively correlated with language. The only positive correlations with language are found in elicited play with appropriate objects. For these children, language is more like reproducing a recognized familiar sequence and less like being presented with a collection of disparate objects and having to create a story out of them.

If spontaneous play involves creating wholes out of parts, then why do the Referential children show negative correlations with spontaneous play with appropriate objects? We believe that an answer may be found in examining the different correlational patterns in light of the mean performances of the groups.

Recall that the Referential group showed high spontaneous performances with appropriate objects, and that this level was relatively unchanged following modeling, whereas the performance with inappropriate objects showed a substantial increase following modeling. The Expressive group, on the other hand, produced low levels of spontaneous play with both types of objects. Following modeling, play with appropriate objects increased substantially more than did play with inappropriate objects. These observations, together with the correlational data, suggest that symbolic play tasks are approached differently by children of different linguistic styles.

Referential children, given a collection of appropriate objects,

may reel off an unanalyzed package of actions, but this type of behavior is either unlike or unrelated to what they are doing linguistically. Presented, however, with an unusual collection of objects, they may put together few schemes, but those they do are similar in construction to utterances. A model of inappropriate combinations seems to facilitate this type of constructive activity.

Expressive children, on the other hand, given a collection of any type of objects, have difficulty in putting them together. Those sequences which they do manage to combine are unlike their linguistic activity. Given a model of a familiar sequence with appropriate objects, however, they excel--producing many ordered sequences which are uncorrelated with their multi-word utterances.

Conclusions

We have presented evidence that the linguistic style adopted by children in the early multi-word period extends beyond language and is related to their approach to symbolic play tasks. Such differences are consistent with a characterization of the Referential child as adopting an analytic strategy in constructing sentences and of the Expressive child as adopting a holistic approach to language.

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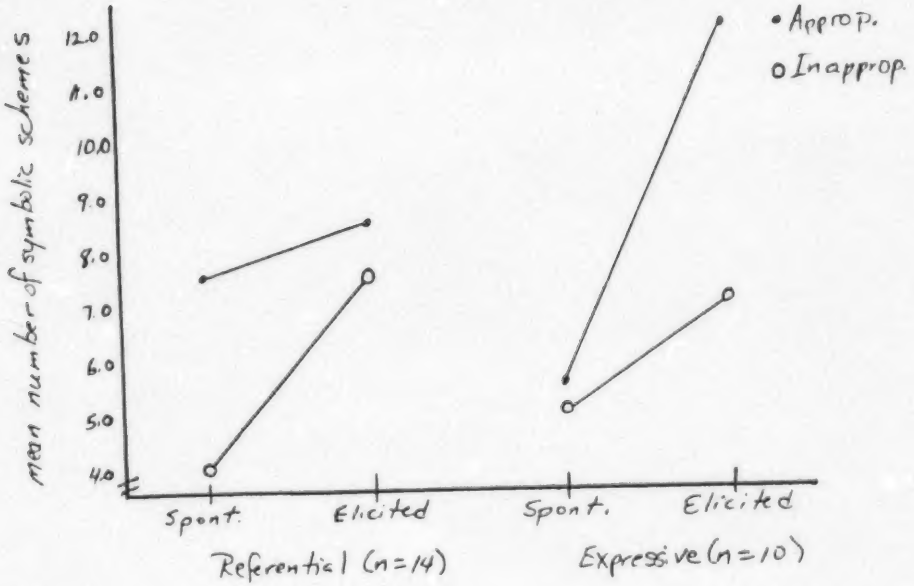
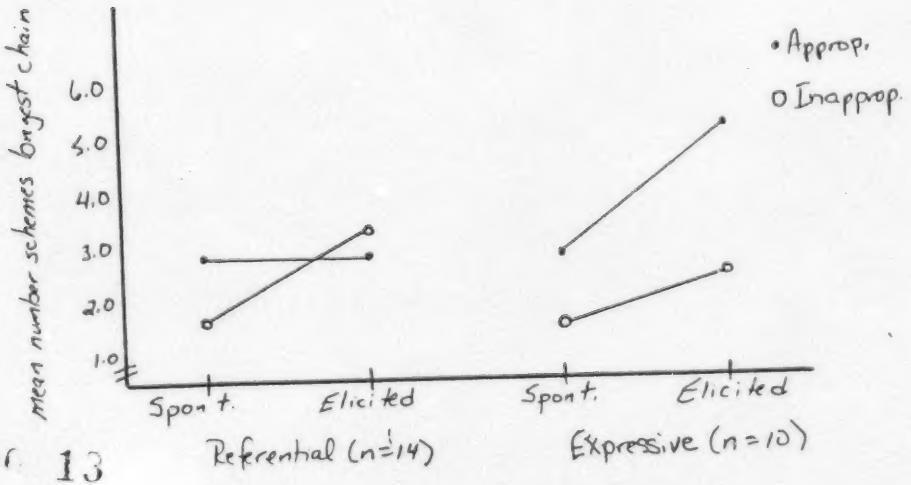
Table 1
Correlations between language and symbolic play

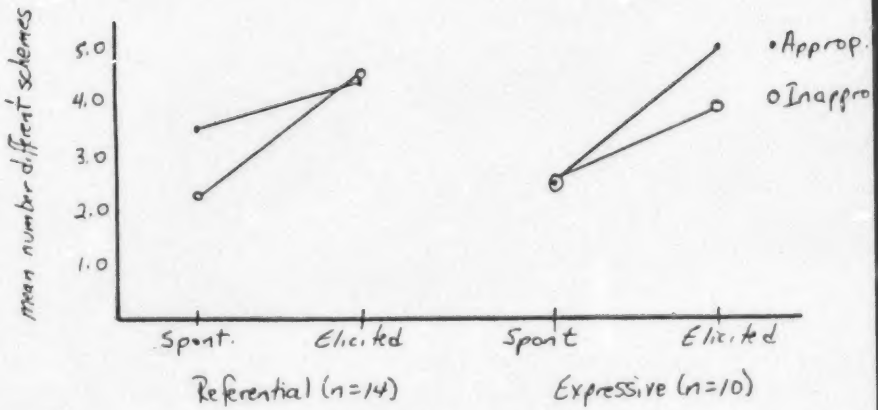
	Appropriate objects		Inappropriate objects	
	spont.	elicited	spont.	elicited
Referential group (n=14)				
Semantic cluster	DLC -.44^{m}			DLC .44^{m}
Morph. cluster	DLC -.46*			DLC .45*
tot. MW utts.			#s .44*,#d .50*	
prop. corpus MW			#s .52*,#d .63*,PO .45*	
MLU 5 longest content			PO .51*	
MLU 5 longest morph				#s .42*
Brown MLU			#d .52*	
Expressive group (n=10)				
Semantic cluster				
Morph. cluster	PO -.56*	DLC .58*		
tot. MW utts.	DLC -.59*	DLC .53^{m}		
prop. corpus MW				
MLU 5 longest content			#s -.58*,SLC -.62*	
MLU 5 longest morph				
Brown MLU				

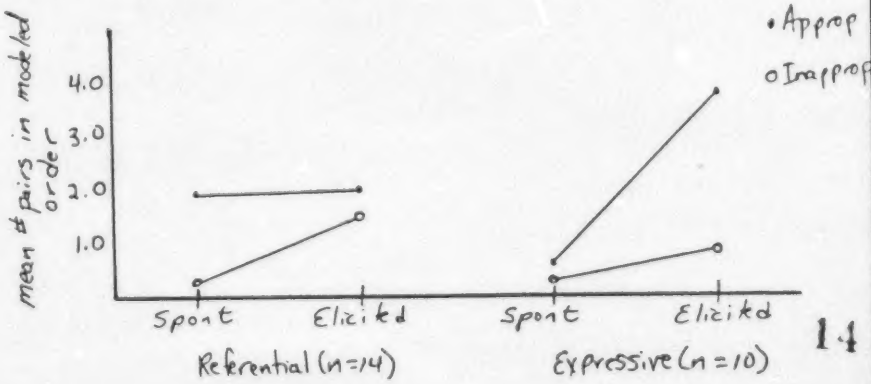
All correlations are non-parametric.
* $p < .05$
m $p < .06$

#s= # schemes
#d= # different schemes
SLC= # schemes longest chain
DLC= Dif. schemes longest chain
PO= pairs in modeled order


mean number of symbolic schemes
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
• Approp.
o Inapprop.
Spont.
Elicited
Spont.
Elicited
Referential (n=14)
Expressive (n=10)


mean number schemes longest chain
6.0
5.0
4.0
3.0
2.0
1.0
• Approp.
o Inapprop.
Spont.
Elicited
Spont.
Elicited
Referential (n=14)
Expressive (n=10)


mean number different schemes
5.0
4.0
3.0
2.0
1.0
• Approp.
o Inappro
Spont.
Elicited
Spont
Elicited
Referential (n=14)
Expressive (n=10)


mean # pairs in modeled order
4.0
3.0
2.0
1.0
• Approp
o Inapprop
Spont
Elicited
Spont
Elicited
Referential (n=14)
Expressive (n=10)